DENVER PC BOARDWATCH

NEWSLETTER FOR DENVER AREA ELECTRONIC BULLETIN BOARD SYSTEMS

Editor: Jack Rickard | Volume I Issue 4 | June 1987

BITS

NEW AREA CODE: Mountain Bell is establishing a new area code within Colorado. Currently, the entire state is area code 303. Beginning March 5, 1988, the southern portion will become area code 719. The new area code will cover Colorado Springs, Pueblo, Leadville, and Alamosa. The northern section remains area code 303.

GRAMMAR HOTLINE: Are your participles all adangle? Are you on the lookout for irregular verbs that have crope into our language? Editorial Services of New England Inc. offers a free grammar hotline. Experts answer questions concerning usage, punctuation, grammar, and editorial style. The Hotline number is voice only at (617)494-5242.

GENTLEMAN'S READING ROOM: Its a red letter day for lavatory librarians everywhere. It seems a small New Jersey publisher claims that Americans spend 120 million manhours per day "on the throne" so to speak. They have issued a reading series titled **THE BATHROOM LIBRARY** consisting of seven titles covering trivia, entertainment, and other subjects in a water-resistant format. Red-Letter Press, P.O. Box 393, Saddle River, NJ 07458. Additionally, they've declared May 10-16 as National Bathroom Reading Week. Telephone (201)934-9445.

TURBO TECHNIX: Borland Int. introduces **TURBO TECHNIX**, a bi-monthly magazine devoted to users of Borland products such as Turbo Pascal, Turbo Basic, Turbo C, and Turbo Prolog. The new magazine debuts in September. Registered owners of Borland software products receive a free subscription. The magazine offers programming advice for programmers using Borland languages. Jeff Duntemann will serve as editor. Borland International. 4585 Scotts Valley Drive, Scotts Valley, CA 95066. Telephone (408)438-8400.

GT POWERCOMM 12.20 RELEASED: P&M Software of Houston TX released version 12.20 of its' popular communications software on May 22. The new release adds the SEAlink and YModem Batch file transfer protocols as well as P&M's own new protocol MEGAlink. Several bugs we noted a few issues ago in the file transfer functions appear to have been fixed. The new version supports baud rates up to 19,200 and purports to work well with the USR 9600 HST modem. The program also features continuously displayed clock, new capture mode with improved buffer review, and strongly enhanced HOST mode - virtually a BBS. P&M Software, 9530 Country Creek, Houston, TX 77036; (713)772-2090 (data). The new version can be downloaded locally from **THE 8TH SEA** at (303)252-9235.

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MARKET INFO: Prudential-Bache now offers an automated market news hotline at (212)976-NEWS featuring Pre-opening, Mid-day, and closing market commentaries. Reports are approximately a minute in length. Long distance charges vary between $0.18 and $0.40 a call depending on time of day and point of origin.

ACRONYMS: Sometimes it seems the entire English language has been reduced to a series of Acronyms. Gale Research Company provides some help with their **Acronyms, Initialisms & Abbreviations Dictionary**. This tome lists over 110,000 acronyms and their definitions. Gale Research Company, Book Tower, Detroit, MI 48226. (313)961-2242.

APPLE SHIPPING MAC II: Apple Computer shipped the first of its Macintosh II computers on April 29, nearly two weeks ahead of schedule. The open-architecture version of the popular Macintosh was originally announced March 2. The MAC II is based on the 32-bit Motorola 68020 microprocessor operating at 15.7 MHz and features six expansion slots. Significantly, the Motorola 68881 math coprocessor chip comes standard in the machine, allowing software developers to write applications using this fast math chip. AST Research has already announced an 80286 card for the machine, allowing it to run MS-DOS software as well.

NEW THESAURUS: The Proximity /Merriam-Webster Electronic Thesaurus is among the industries largest with 40,000 root words and 470,000 synonyms. **Multimate Advantage** users may recognize it as the on-board thesaurus bundled with Multimate. As of June 1, this thesaurus is available as a stand-alone memory-resident program similar to Borland's Turbo Lightening. Price - $79.95. No matter what word processor you prefer, now you can equip it with this excellent thesaurus - highly recommended for serious writers.

Coming September 1, Proximity will introduce an electronic dictionary of similar size allowing you to look up actual definitions and pronunciations much as you would using a printed dictionary. Proximity, Inc.,3511 NE 22 Ave., Ft. Lauderdale, FL 33308; (305)566-3511.

AT&T LOWERS RATES: American Telephone & Telegraph Co. said it plans to cut interstate long-distance prices 4.8% effective July 1, reflecting changes in the subscriber line charge ordered by the FCC.

The current $2 access fee is scheduled to rise $0.60 effective July 1. With the 60-cent charge, local telephone companies are lowering charges AT&T and other long-distance companies pay for communications access to homes and businesses.

AT&T said it will save about $590 million annually in lower access costs and plans to pass the entire savings along to long distance customers via the 4.8% rate decrease.

AT&T said the proposed rate cut brings reductions in long distance prices to 16% this year and 34% since the 1984 divestiture of the Bell System.

US Sprint Communications Co. and MCI Communications Corp each said they too will cut rates, but declined to specify how much.

XYWRITE UPGRADE: Xyquest Inc. of Bedford, Massachusetts plans to announce version 3.2 of its popular XYWRITE word processing package at Comdex in Atlanta GA this month. The new version is rumored to include interactive and batch spell checking, thesaurus, and redline features.

MS-DOS UPGRADE: Microsoft Corp. is currently shipping version 3.21 of its popular MS-DOS operating system. This release is ostensibly a very minor upgrade of version 3.2 released to correct some minor bugs in the 3.2 version. Microsoft Corp., 16011 NE 36 Way, P.O. Box 97017, Redmond, WA 98073; **(206)882-8080.**

FIRST IMPRESSION: Megahaus Corp. has announced a new $895 publishing package aimed at publishers of lengthy technical documents. The new package, similar to Aldus Pagemaker and Xerox Ventura Publisher, is titled **FIRST IMPRESSION.** The program accepts text from such popular word processors as Word Star, Word Perfect, and Multimate and tables from Lotus 1-2-3 and Symphony. Graphics can be imported from Autocad, Versacad, and PC Paintbrush files as well as a variety of page scanners. Megahaus Corp., 5703 Oberlin Drive, San Diego, CA 92121; **(619)450-1230.**

NEW ON-LINE SERVICE: IBM Corporation and Sears have joined forces to back a new on-line service titled **TRINTEX.** The system will operate on a low monthly flat fee rather than the per hour connect charge favored by most commercial on-line services. The system will provide banking services, airline reservations, and EMAIL. **USA TODAY** will provide news coverage and **CONSUMER REPORTS** will provide consumer guidance information. **DOW JONES NEWS** will provide business data. Trintex, 445 Hamilton Ave., White Plains, NY 10601; **(914)993-8000.**

PC NETWORK BANKRUPT: PC Network, a popular computer hardware/software mail order house had recently agreed to pay fines of up to **$65,000** to the **FTC** in relation to some questionable mail order business practices. The latest news is the group has filed for **Chapter 11 bankruptcy** protection. PC Network President Stephan Dukker claims the group is still operating and the bankruptcy is a true reorganization. Be advised that customers of failed mail order firms have not fared well in recent years. Buyer beware. PC NETWORK, 320 West Ohio St., Chicago, IL 60610; **(800)621-SAVE.**

PC's LIMITED 386 MACHINE: PC's Limited of Austin Texas is advertising an IBM compatible computer based on Intel's 32 bit 80386 microprocessor. The machine features a 16 MHz clock speed, 1024 Kbytes of 0 wait state RAM, 1.2 Mbyte floppy, 40 Mbyte/28ms hard drive, 2 serial ports, 2 parallel ports, clock/calendar, Hercules compatible monochrome graphics, and monitor for $4,499. EGA systems and hard drives up to 150 Mbytes are also available. PC's Limited, The Dell Computer Corporation, 1611 Headway Circle, Building 3, Austin, TX 78754; **(800)426-5150.**

80387 MATH CHIP: Intel Corporation began shipments of its $500 80387 math co-processor chip this month. The chip is rated at **16 MHz** and improves the speed of most software about sixfold with over 100 fold

increase in floating-point operations. The chip works with machines based on the 80386 microprocessor. Intel Corp., 3065 Bowers Ave., Santa Clara, CA 95052; **(408)496-4580.**

NEW HERCULES VIDEO CARD: Hercules Computer Technology has introduced a new $499 video adapter providing the familiar 720x348 resolution of its' monochrome graphics card but with up to 16 colors from a 64 color palette. The new card, termed **INCOLOR**, is compatible with all software supporting the Hercules graphics standard and requires an EGA type color monitor. Hercules Computer Technology, 2550 Ninth St., Berkely, CA 94710; **(415)540-0600.**

TANDY ON THE MOVE: InforCorp, a Cupertino CA market research firm, reports TANDY corporation sold nearly 275,000 IBM compatible computers in 1986. This makes it the largest manufacturer of compatibles in the world.

LOCAL SERVICE

FIDO NET STILL GROWING: The local Fido network 104 continues to grow rapidly with new boards added and some existing local boards converting to Fidonet. **THE ENTERTAINMENT LINE** at **(303)969-9510** has joined net 104 as node 36. Alan Applegate is system operator and a regular contributor to **DENVER PC BOARDWATCH**. Alan's board continues to concentrate on top ten ratings for music and video works but sports some attractive new Fido Software.

Two new boards join the net. Rob Diehl of Fort Collins brings us **HP-BBS** Net 104 Node 34 at **(303)229-9719.** Notably, Robs new BBS is run on a Hewlett Packard Vectra PC computer.

Finally, **CLUB MICRO** at **(303)832-5850** joins the net as node 88.

RAM BOARD: Rick Murphy sysops a new area BBS as of April 28. This entry is titled **RAM BOARD** and operates at **(303)449-8421.** RAM Board is sponsored by RAM Equipment Company and a good deal of hardware and software dealing occurs on this BBS at fairly attractive prices. The board uses RBBS software on an IBM PC AT compatible machine. This BBS also features some very active **CHESS** and **TRADEWARS** games via the "doors" menu selection. You can join a game of chess or tradewars and play against other callers. This is somewhat like playing video games by mail - slow, but still entertaining.

DBSYTEMS: Richard Douglas is developing a BBS software program for Radio Broadcasters titled Douglas Broadcasters System. A Beta test version is running at **(303)893-5717** and receiving some excellent message traffic. The board features radio listener surveys, and a very interesting structure quite different from the formats commonly encountered with TBBS/RBBS/FIDO/OPUS boards.

FATHER'S NETWORK: Dave Rose brought us a new BBS May 16 at **(303)721-9484.** This board is devoted to the legal rights of fathers in divorce proceedings and child custody determinations. A divorced father himself, Dave is past president of Fathers For Equal Rights (FFER) of Colorado and now serves as Executive Vice President of the National Congress for Men (NCM) in Washington DC. NCM is holding their national convention here in Denver in September, 1987. **FATHER'S NETWORK** runs on a Kaypro 286i with RBBS software and provides some fascinating

text files on the subject of the legal rights of men in child custody battles. At this writing, the board was operating limited hours from 8 PM to 6 AM. Dave has announced a move to **(303)693-6818** effective June 1 with 24 hour operation.

AMNET-ONLINE: James Cherry of Fort Collins is involved with a group in support of the **rights of animals** and the prevention of their mistreatment. His **AMNET-ONLINE BBS** at **(303)223-1297** has some very interesting information for those with similar interests.

CONTROL SYSTEMS MOVING: Don Stone of Parker Colorado is sysop of **CONTROL SYSTEMS II** BBS at **(303)841-6865.** Don has accepted a new job in Wisconsin. As a result, he will take the board with him effective June 10. Don indicated he will notify us of his new number once there for those PC Pursuit equipped users who might still want to logon.

LOCAL EVENTS: Terry Travis, of **DENVER METROPLEX FIDO 104/609 (303)455-3283,** has announced a picnic for sysops and users to be held in the southeast corner of Washington Park on June 14. The gathering is planned for noon. Bring a lunch and meet the faces behind your favorite BBS.

Oscar Barlow, local Fidonet area coordinator, has announced the next Fidonet sysop meeting will be held July 11 at Denver University. For details, contact Oscar at **MILE HI TECH FIDONET 104/56 (303)973-9338.**

NEW MAC BOARD: The Denver Macinstosh Users Group started a new BBS in May. Interestingly, the **MILE HIGH MAC MEET BBS (303)758-9159** runs on an IBM compatible AT&T 6300 computer. The new board also features the US Robotics 9600 HST modem. The board provides software downloads for the Apple Macintosh computer. Jon Taylor is system operator.

LONG DISTANCE

ROHR JOB BOARD: Rohr Industries, Inc. is currently advertising engineering positions available in the San Diego area. The company manufactures engine nacelles used in jet aircraft. They also maintain a BBS where users can examine current job opportunities and upload their resume. The **ROHR JOBLINK** service operates at **(612)941-5723.** After logon, enter **ROHR** in response to the PASSWORD: prompt. Rohr Industries, Inc. P.O. Box 878 Dept. 496, Chula Vista, CA 92012

INVESTMENT SERVICE: Quick & Reilly now offers personal computer users 24 hour computer trading via modem. The service, titled **QUICK WAY,** allows **COMPUSERVE** subscribers to retrieve quotes on stocks, options, or market indexes. More importantly, it allows them to enter buy/sell orders at discount brokerage commission rates as low as $35 per trade. Orders are accepted day or night with on-line report responses as well as written confirmation. The cost - a $2.50 per hour surcharge (evenings) above the normal **COMPUSERVE** connect. Quick & Reilly, Inc., 120 Wall Street, New York, NY 10005. Voice phone **(800)672-7220.**

BYTE INFORMATION EXCHANGE: Byte magazine sponsors an on-line service titled Byte Information Exchange **(BIX).** This service supports nationwide E-Mail as well as 100-150 technical conferences supporting almost any type of computer system. Signup requires a one-time fee of $25

plus connect-time charges of $18 per hour during prime time and $11 hourly during the evening. You may access the service via a local Tymnet call at (303)830-9210. After connect, random characters may appear on screen at 1200 baud. Enter your terminal type by typing A and pressing ENTER. Enter BIX and press ENTER to select the BIX service. In response to the resulting question mark query (?) enter NEW and press ENTER. The service will lead you through the **worlds longest and most tortuous signon process** complete with a legal document suitable for insulating a small two story home. The service itself? We don't know - the logon procedure was all the excitement we could bear in one evening.

TELCOR AMERICA: Electronic bulletin board systems operating from toll free 800 numbers are usually quite interesting. And when they aren't, they're at least free. TelCor America operates a BBS listing both wholesale and retail businesses throughout the country at (800)231-3158. You can search the database by state, community, and industry. TelCor America, P.O. Box 40206, Cleveland, OH 44140. Voice phone (216)327-1623.

B.DALTON BOOKSTORE BBS: B.Dalton Software Etc of Indianapolis Indiana is running an electronic bulletin board at (317)576-0261. Sysop Kent Zimmerman is quite knowledgable about software and books offered by B.Dalton, 188 Castleton Square, Indianapolis, IN 46250

TELEBIT TRAILBLAZER

The hot item in modem technology currently is a unit packing tones over phones at the line searing pace of 7.8 baud. No mistake - just over 7 1/2 oscillations per second. Not impressed? We are. Routine file transfer data throughputs of 18 kilo bits-per-second (kbps) are part of what perks us up. If your spouse should pick up the extension phone and play the trombone into it to get your attention, this data rate can drop markedly, but your file transfer will continue error free. These are the claims of the Telebit Trailblazer modem.

What does all this mean in real-time? On a good line achieving a 16 kbps data rate, a 165,000 byte file will make the trip in about 1 minute, 45 seconds. From Boston to Sydney, a 6 kbps rate is more realistic and it could take nearly 5 minutes. By comparison, a 1200 bps transfer would require roughly 25 minutes and you probably couldn't make it to Sydney error free even if you owned the phone company. And at 300 bps? You could have two kids and three promotions and Sydney would still be waiting.

How is it done? The telephone is optimally capable of a frequency bandwidth about 4000 Hz wide. The Trailblazer divides this bandwidth into 512 carrier channels. When two Trailblazers first connect in Telebits proprietary Packetized Ensemble Protocol (PEP), they analyze these 512 channels to select those usable for transmission and the data rate they are capable of carrying. This usually results in about 400 usable channels on a good line. Data is formed into 2000-bit packets and transmitted

in parallel over the selected channels using a fairly complex multicarrier modulation technique. This technique involves a mathematical function termed "In-place radix-8 fast fourier transform", greatly reducing the effects of line noise. To further reduce errors, the Trailblazer uses a 16-bit cyclic redundancy check (CRC) very similar to that used by the familiar XModem CRC file transfer protocol. If the packet fails the CRC check, it is retransmitted. If line noise increases, the Trailblazer reduces the data rate in 100 bps increments and drops the most affected channels until operation can continue. Bottom line? Very fast and very resistant to errors.

Compatibility? The usual difficulty with high-speed modems is the requirement for both ends to use the same brand modem. Unfortunately, to attain these high speeds, the Trailblazer too can only talk to another Trailblazer. However, the Trailblazer now comes equipped to "fall back" to Bell 103 (300 bps), Bell 212A (1200 bps), V22 (European 1200 bps) and V22bis (2400 bps) protocols.

The Trailblazer is actually a small computer with a Motorola 68000 microprocessor as a controller, a Texas Instrument 32010 microprocessor to perform the fast fourier transform, and an Advanced Micro Devices 7901 for Analog/Digital conversions. As a result, all operating characteristics and protocols are controlled by software in Read-Only-Memory (ROM). Theoretically, this modem could be updated to any future protocol by a simple ROM chip replacement - assuming Telebit continues to support these models.

Price? Telebit is just a bit proud of this box. The stand-alone unit lists for a bank quivering $1345 with the internal model trading at a still frightening $1195. While this is half of the ticket required a year ago, its still a bit pricey for home users. But, for businesses who absolutely positively have to get it there tonight, this may be the way to go. Sysops can get a one-time good deal on these units at $672.50 and $597.50 respectively through the Telebit Opportunity for Participating Sysops (TOPS) program. Ostensibly, whichever high speed modem manufacturer can capture the amateur BBS market will be, in effect, adopted as a standard by popular acclaim. Already 18 Fido boards have signed on with Telebit. In fact, Telebit plans its own IFNA Fido board in Cupertino, CA, Net 143, beginning this month. The BBS will offer some technical support and advice as well as accepting TOPS orders. For more info on TOPS, contact Bruce Blain, Telebit Corp., 1740 Massachusetts Ave., Boxborough, MA 01719; **(617)263-9449** or address Fidomail to him care of Net 132/ Node 101. The Telebit Cupertino order phone is **(800)TELEBIT.**

UTILITIES

ARCHIVE UPDATE: PKWare Inc. has released **PKX35A35.EXE** - version 3.5 of its popular PKARC and PKXARC archive utilities. Last issue, we reviewed a series of archive utilities including **ARC520.COM, PKX34A20.COM** and Vern Buerg's **ARCA** and **ARCE** utilities. These programs allow you to combine a number of files into a single archive file less than half the size of the sum of the original files. This makes it very easy to transmit a series of files as a single entity - saving both steps and time

In that review we concluded that **PKX34A20.COM** was the clear winner creating both the smallest archive and performing the archive/extract operation much faster than either of the other utilities. The **PKX34A20.COM** is a program that produces PKARC, and PKXARC files. The PKARC is used to archive files and PKXARC extracts them. In our review, PKARC was version 2.0 and PKXARC was version 3.4.

As of April 27, PKWare Inc. has released **PKX35A35.EXE**. This program creates version 3.5 of both PKARC and PKXARC. The new versions are even faster (1.5 - 2.0 X) than before and several new features have been added. The PKARC program allows password encryption of archives using a new "arc garble" feature.

Several readers called us to task over PKs' non-standard **"SQUASHING"** file compression technique. This allowed PK to create archives that could not be extracted using System Enhancement Associates **ARC520** program or the Buerg utilities. We still contend that squashing is a fast and efficient method of file compression. But, for those users who insist on "compatibility" with these older standards, PK does provide a **/OTC** command that disables Squashing and follows the SEA date stamping standard.

The new program also features a function to create self-extracting .EXE files. Ostensibly, this could allow you to create archives that extract themselves.

We ran the new version against **ARC520**, and the Buergs utilities again. This time we created archives from 15 text files totalling 226,816 bytes. The benchmarks were run on an IBM compatible machine at 4.77 MHz. All operations were performed from RAM disk to reduce the effects of drive mechanics on program performance. The results are shown below. Create and extract times are given in seconds.

ARC PERFORMANCE COMPARISON

PROGRAM	CREATE	EXTRACT	ARCHIVE SIZE	REDUCTION
PKX35A35.EXE	43	31	105,398	53.68%
BUERG ARCA/ARCE	73	43	106,446	53.06%
ARC520.COM	325	160	105,784	53.36%

Again, the PK utilities were much faster than Buerg utilities or SEA's ARC520. Bravo Phil Katz and PKWare Inc., 7032 Ardara Avenue, Glendale, WI 53209. Support for **PKX35A35.EXE** is provided by **EXEC PC BBS** at **(414)964-5160**. **PKX35A35.EXE** is available for download locally from **CABLE NET OPUS** at **(303)595-0003**.

PHONEFUN.COM: Gary Wingert.Everyone has heard of businesses advertising their phone numbers as an easy to remember word such as **800-TELEBIT**. Each number on the phone dial, except for 1 and 0, has 3 letters associated with it. The example phone number above renders **(800)835-3248**.

PHONEFUN.COM calculates 7-letter combinations from

telephone numbers, or alternately, phone numbers from a 7-letter entry. For any 7 number combination, there are 2,187 7-letter combinations.

PHONEFUN.COM calculates all of them and presents them on screen, disk, or printer as you wish. Of course, the numbers 1 and 0 have no associated letters - a possible problem unless you end up with something like IAMTHE1 (I AM THE 1).

Some numbers convert to more recognizable messages than others. We certainly hope **DENVER METROPLEX FIDO 104/69** enjoys a long and happy future at **(303)455-3283.** But its corresponding anagram spells **ILL-FATE. CONTROL POINT FIDO 104/711** is apparently involved in some rather messy exercise at **(303)526-9642** but you can remember them as **JAM-YOGA.** Similarly **FANTASY MOUNTAIN** at **(303)278-8369** renders **BRUTE OX** while the **LAKEWOOD DEPARTMENT OF SAFETY BBS** at **(303)987-7388** can choose between **WURSE VU** and **YUPPE TV.**

PHONEFUN is not going to revolutionize the way you deal with your computer. But its fun, simple to use, and it works well. The program is written in a version of BASIC called **ZBASIC** that produces a pretty impressive compiled output. **PHONEFUN** can be downloaded locally from **THIS END UP FIDO 104/30** at **(303)430-1585.**

PC OUTLINE: Brown Bag Software brings us **PC OUTLINE** version 3.24 issued December 15, 1986. **PC OUTLINE** is a memory resident shareware utility ideally suited for notes and task lists. It allows you to create an electronic outline with main topics and indented subtopics in a standard outline format. In operation, the program is similar to commercial software such as **READY, THINKTANK,** and others.

Although shareware, the program concedes nothing to the more expensive commercial software. It features zoom windows and pull down menus with sliding bar menu selector. After becoming familiar with program operation, you may want to graduate to the more efficient control key combinations that duplicate all functions available from the pull-down menus. The overall effect is very professional.

The outline can include both main topics and "children" or subtopics. These subtopics can be either in view or hidden (collapsed) at the touch of a key. Topics can also be moved very easily with all subtopics following along.

The program features such touches as full printer control, full support of hard disk path commands, and date/time stamping.

As a memory resident program, it consumes about 80 Kbytes of memory. Notably, the installation procedure allows you to define the key to activate the program.

One of the outstanding features of this program is its uncanny ability to import and export text data from the screen from almost any program. We like PC OUTLINE for these type of operations better than SIDEKICK.

Some memory resident programs have problems working with other software. In some ways, we found PC OUTLINE exceptionally troublesome. R:base System V wouldn't even load with PC OUTLINE onboard. Still, the program is a valuable tool for anyone who uses word processors regularly. Price - $89.95. Brown Bag Software, 2155 South Bascom Ave., Suite 114, Campbell, CA 95008.

MICROCOM 9624c

High speed modems are coming under increasing scrutiny as businesses, electronic BBS, on-line data services, and users all struggle toward a standard high-speed communication interface.

Microcom of Norwood Massachusetts is among the top three contenders to establish a 9600 bps standard with its' proprietary Microcom Networking Protocol (MNP). MNP is actually a combination of several file transfer techniques into one transfer mechanism. This mechanism consists primarily of:

Packetization
CRC Error Checking
Adaptive Packet Sizing
Data Compression

Packetization is performed to break the transfer file into discrete groups of data of a specific number of bytes for transmission.

CRC Error Checking consists of a 16-bit Cyclic Redundancy Check used to detect transmission errors in each packet. The two-byte CRC checksum is added to the end of each packet. The receiver uses this CRC value to check the integrity of the transmitted packet and request retransmission of the packet if errors are detected. This works very much like the XMODEM CRC file transfer protocol.

Adaptive Packet Sizing refers to the MNP Protocols ability to select 32, 64, 128, 192, or 256 byte packet sizes depending on telephone line quality. Poorer lines require smaller packets.

Data Compression refers to MNPs ability to squeeze data into a smaller number of bytes before transmission. The receiving end un-compresses the data to original configuration. This works very much like the familiar ARC utilities. Technically, the MNP protocol uses both adaptive encoding and run length limited encoding to compress data.

The Microcom 9624c model uses a technique termed Universal Link Negotiation to connect with just about any modem. The 9624c will gladly logon using the existing Bell 103 (300 bps), Bell 212A (1200 bps), CCITT V.22 (European 1200 bps) and CCITT V.22bis (2400 bps) standards. But the 9624c is built to communicate at 9600 bps using the CCITT V.29 standard established for 4800, 7200, and 9600 baud machines. Although adopted by CCITT, this 9600 baud standard is hardly universal. And like other high speed modems, the 9624c operates best when connected to another modem of the same model. Using the data compression techniques of MNP and operating at 9600 bps absolute, the 9624c claims apparent data rates up to 19,200 bps.

The 9624c comes in a stand-alone configuration (AX/9624c) as well as internal circuit card (PC/9624c). Either model lists for very close to $1000 - pricey, but in line with other high-speed models. Like its competitors, US Robotics and Telebit Corp., Microcom offers a discount program for system operators in an effort to capture the hobbyist market. Either the AX model or the PC model can be obtained for $500 with the usual limit of one modem per BBS. Microcom requires the sysop to display a sign-on screen message for 30 days. For further info on the program contact Microcom, 1400 Providence Highway, Norwood, MA 02062; (617)762-9310.

EDITOR'S NOTES

With this issue of DENVER PC BOARDWATCH we present a verified list of 217 electronic bulletin boards/on-line services for your inspection. As always, we have confirmed each number by actual telephone contact. We logged onto the vast majority with a few confirmed by conversation with the sysop. Although the labor involved in verifying all boards each month at times seems onerous, we are committed to providing you the most accurate, up-to-date listing of BBS available anywhere.

This month we bring you a glimpse of the ongoing evolution of modem technology. High speed modems will play an increasing role in PC communications as prices come down and data rates increase. Telebit's Trailblazer and the Microcom 9624c models are just two of a phalanx of new modems coming your way in the future. Although establishing standards at the higher rates continues to be a problem, we are confident that 2400 bps will be common in a year with 9600 bps increasingly available and 19,200 bps available to serious enthusiasts.

The BBS community in the Denver area appears to be increasing in size, vitality, and diversity. New boards just starting out are receiving between 300 and 400 calls in their first month. Established boards routinely receive 25 calls a day and some of the older and more popular boards are virtually impossible to get onto due to the constant busy signal emitted over the lines. Some special interest boards with fairly restrictive time limits indicate a daily log approaching 50 calls - the 50 that got through. We are currently attempting to develop a statistical model for estimating the number of users here on the front range. Please bear with our requests for information. We do not intend to be intrusive or prying. All results will of course be made available through these pages for your use.

The computer industry is entering a period of explosive growth. InfoCorp, a Cupertino market research firm reports that IBM sold more PCs in the first quarter of 1987 than any previous quarter. Tandy sold 275,000 compatibles in 1986. With this growth comes increased interest in PC communications. WESTWORD magazine recently featured Henry Birdseye, sysop of Unknown TBBS, in a description of his JOKES SIG. The Denver Post ran an article on electronic BBS in the May 24 Sunday Business Section. Author Philip Bulman conservatively postulated that there may be as many as 40 electronic bulletin board systems active in the Denver area. Our question - what are the other 177 doing?

We'd like to see a local service that could upload a file, print it out on a high quality laser printer, and mail it to 1000 different locations for a reasonable fee. Or perhaps return a term paper to our home within two days. We'd like to see some local BBS hook up their systems to weather instrument peripherals providing real-time temperature, precipitation, wind speed and direction, and barometric pressure data. A network of just a few such BBS could service television networks and weather bureaus with local remote data. And, of course, our readers.

Keep connected...

Jack Rickard

DENVER PC BOARDWATCH
LOCAL BBS LIST — CONFIRMED UP

BOARD	TELEPHONE	BAUD	HRS	DESCRIPTION	SYSTEM
Aces High	329-6579	3/12	24	Programming/General Messages	Franklin
Adventure's Inn	933-8872	3 (7E2)	9:30P-3P	Dungeons and Dragons Role Playing Games	??
Alpha BBS/ Interconex	367-1935	3/12/24	24	Tandy/Ham Radio/Space Topics	TRS
AmNet On-line	1-223-1297	3/12	24	Animal Rights Issues	IBM
Apparat Inc.	790-7947	3/12/24	24	IBM Fido board	IBM
Apple Pi Board	422-3716	3/12	24	Apple User Group Messages/Downloads	Apple
Atlantis	973-0369	3/12	24	Apple, MAC, Message	Apple
Aurora Net	680-9292	3/12/24	24	Protree Prime/Elite Support Board	Apple
Aurora Public Shools Network	693-6737	3/12	24	Stock Market Simulation/ APSNET	Apple
Aurthur's Den	680-1724	3	??	Commodore	C-64
Back Door BBS, The	690-0194	3/12/24	24	Games	Apple
Backstage BBS	690-2018	3/12/24	24	INFO NEEDED	??
Baha'i Board	449-3306	3/12	24	Religious/Philosophy/Baha'i faith	IBM
Bank, The	771-7531	3/12	24	Not Accepting New Accounts	Apple
Blue Planet	979-7299	3	24	Space Wars Game	Tandy2000
Boulder Fido 104/77	497-6968	3/12/24	24	Messages and Downloads	IBM
Boulder MAC Maniacs	666-7543	3/12	24	MAC Messages	Apple
Box's Cabin, The	424-9185	3/12	24	Apple/Technical Notes	Apple
Buck Board, The	427-9539	3/12	24	Veterans messages, TRS-80, Amiga	TRS
Bud's BBS	761-6807	3/12	24	Atari - 3.123 Megs - News items	Atari
C.A.R.L Boulder/Broomfield	444-2057	3/12	24	Library Research	Tandem
C.A.R.L Colorado Springs	1-632-2194	3/12	24	Penrose Library	??
C.A.R.L. Denver	830-8519	24	24	Colorado Alliance of Research Libraries	Mainframe
C.A.R.L. Denver	830-1547	3/12	24	Colorado Alliance of Research Libraries	Mainframe
C.A.R.L. Denver	830-1546	3/12	24	Colorado Alliance of Research Libraries	Mainframe
C.A.R.L. Denver	830-1548	3/12	24	Colorado Alliance of Research Libraries	Mainframe
C.A.R.L. Denver	830-1165	3	24	Colorado Alliance of Research Libraries	Mainframe
Cable Net Opus	595-0003	3/12	24	New Board!	IBM
Career Connection/DRUG	671-0801	3 to 96	7P-7A	Job List/Resume/Denver Rainbow Users Grp	DEC180
Castle Darkhorn	220-1588	3/12	24	Role Playing Games	??
Catspaw SNOBOL4/ICON 15/22	1-539-4830	3/12/24	24	SNOBOL/ICON Programming Languages	IBM
Chariot	1-632-3391	3/12	24	Public Access Version Unix/Graphics	IBM
Chariot	1-632-4111	3/12	24	Subscriber Only BBS Unix	IBM
Cherry Hills Village Post BBS	762-1981	3	??	Cherry Hills Village Elementary School	??
Cheyenne Wells Shool District	1-767-5533	3/12	3P-8A	High School BBS	??
Chip's Ahoy AE TAC	693-2452	3	24	For Apple with ASCII Express Only	Apple
Christian Protocol	745-1504	3/12/24	24	Christian Messages/Bible Text	Epson
Club House, The	756-9134	3/12	24	RP Games/Golf Format/Messages	Apple
Club Micro Max Fido 104/88	832-5850	3/12	24	INFO NEEDED	IBM
Coco County Airport	343-6707	3/12	24	TRS Color Computer Support	CoCo
Colorado Commodore Club BBS	452-8544	3/12	24	Commodore Info	C-64
Colorado FireNet Fido 128/16	1-591-7415	3/12	??	Colorado Springs	??
Colorado Sno-Bank	671-7669	3/12/24	24	Ski Conditions, Roads, Winter Rec Info	IBM
Colorado University	447-2540	3/12	24	University Mainframes (Require Access)	Mainframe
Comm-Net Information Service	340-2473	3/12	24	* These Four Lines All Access the Same *	C-64
Comm-Net Information Service	366-3898	3/12	24	* Service Jokes/Weather/Sports/Database *	C-64
Comm-Net Information Service	366-2341	3/12	24	* Excellent Info for Commodore Products*	C-64
Comm-Net Information Service	366-7177	3/12	24	* C-64/C-128/Amiga Info-Dolds-Messages *	C-64
Comm-Post, The	534-4646	3/12/24	24	Astronomy, TI-PC, Tandy 1000/2000, Jokes	IBM
Communications Station	232-2820	3/12	24	Online RP, Helpful Bulletins, Wantads	C-64
CompuMatch Club	467-3832	3/12	8A-5P	Adults Only	??
Compurado Node 1	1-593-1872	3/12/24	??	MS-DOS/CP/M	??
Compurado Node 2	1-591-9448	3/12/24	24	MS-DOS/CP/M	??
Computer Farm	1-632-8669	3/12/24	24	IBM Hardware/Software Sales	IBM
Computer Palace	1-544-4432	3	7P-10A	Pueblo - Commodore / TI / Atari Software	C-64

DENVER PC BOARDWATCH
LOCAL BBS LIST — CONFIRMED UP

BOARD	TELEPHONE	BAUD	HRS	DESCRIPTION	SYSTEM
Computer Repeats Inc.	939-8174	3/12	24	Used Atari Equipment Sales	Atari
Computers Unlimited	762-9122	3/12	24	Sanyo MBC-55X Support	IBM
Computerworks	665-0709	3/12	24	Macintosh/IBM PC Info Exchange	MAC
Control Headquarters	1-472-0902	3	24	INFO NEEDED	??
Control Point Opus	526-9642	3/12/24	24	Satellite Info/Excellent Download Files	IBM
Control Systems II	841-6065	3/12/24	24	63M Downloads/Boardwatch/Comm Software	IBM
Control Systems Premier	458-6248	12/24	24	IBM/Compatibles Subscription Board	IBM
Controller Board/TBBS Island	690-9423	3/12	24	Computer Supplies	TRS
COSUG	1-531-9674	3	24	Colorado Springs PC Users Group	IBM
CP/M SIG INC Fido 104/372	465-1313	3/12	24	Oldest User's Group in Area - CP/M - IBM	IBM
CPU Board	1-772-7229	3/12/24	24	Downloads and Useful BBS Info Since '83	TRS
Crossroads	989-8397	3/12	24	Discussion	TRS
CS BBS Service I	1-531-6668	3/12	24	Subscriber Access Fido 128/11 Zenith	IBM
Custom HUB	1-598-4500	3/12/24	24	Colorado Springs HUB	IBM
Data Bank	494-0167	3/12/24	24	IBM Messages - Good Utilities	IBM
Day's End Fido 104/20	650-5636	3/12/24	24	Downloads, Messages, Astronomy	IBM
DBSYSTEM Beta Test BBS	893-5717	3/12	24	New BBS Software - Comm.Radio Survey	IBM
Death Star, The	781-6863	3/12	8P-6A	Fun Posting	C-64
DEKBBS	1-635-3732	3/12	24	INFO NEEDED	??
Dementia	989-8470	3/12	24	American MENSA Denver Chapter BBS	Apple
Den HUB	331-0982	3/12	24	Denver Heath/Zenith User Group	Heath
Denver Dating Board	343-1579	3/12	5P-7A	Audio Visual Production, Personal Ads	C-128
Denver Deaf-Net	989-9245	3/12	24	Hearing Impaired / Computing	Apple
Denver Metroplex Fido 104/69	455-3283	3/12/24	24	Autocad/Computer/Sexual Boards	Kaypro
Denver Mile High Mac Meet	758-9159	3 to 96	24	Macintosh Users Group	IBM
Dialamatch 118/The Brokerage	796-9721	3/12	24	Adult Matchmaking	Franklin
Dilligaf	1-593-2232	3	24	INFO NEEDED	??
Dinosaur Board	1-652-3595	3/12	24	Specializing in Outdated Computers TRS	TRS
Discovery, The	388-5437	3/12	24	Music/General	Apple
DJ-Galactic Conquest	789-0500	3	24	Galactic Conquest Game On-line	Apple
Dragon's Shadow	841-3721	3	24	Fantasy	??
Eagles Nest Fido 128/18	1-598-8413	3/12	24	Eagleview Middle School	IBM
Education 2000 Fido 104/29	499-6320	3/12	24	Education Issues K-12	??
Electronic Gathering	1-599-5366	3/12	24	Magic	??
Electronic Locksmith RCP/M	698-1623	3/12/24	24	50M Downloads (CP/M & MS-DOS)	CP/M
Elkridge West	1-488-2671	3/12/24	24	INFO NEEDED	??
Entertainment Line Fido 104/36	969-9510	3/12	24	Movie, Video, Music Reviews/Ranking	IBM
Epoch 2000	1-531-6172	3/12	24	Astronomy	??
ETA Denver Fido 104/32	750-5042	3/12	24	ANSI, Messages, Weather Forecast, Dnlds	Tandy
Eusebeia Fido 104/18	438-8376	3/12/24	24	Christian BBS - Full KJV Bible Downloads	IBM
Excalibur	1-597-0657	3	??	INFO NEEDED	??
Excelcier	697-1244	3/12	24	Apple/Commodore Message Areas	Apple
Experience Software	798-0792	3	24	Franklin Messages	Franklin
Fantasy Mountain	278-8369	3/12	24	Art/Downloads	CP/M
Father's Network	693-6818	3/12	10P-8A	Father's Rights in Divorce Issues	Kaypro286
Fiddler's Fido 104/606	674-1859	3/12/24	24	IBM Equestrian	IBM
Fido NBS 104/607	497-3934	3/12/24	24	National Bureau Standards - Jobs SIG	IBM
Fishery, The	756-3813	3/12	24	Atari/Macintosh	Atari
FOB-45	1-471-2415	3/12	24	Colorado Springs Osborne Group	Osborne
Future BBS, The	986-9031	3	9P-4P	Role Playing Games/Game Tipsheets	Apple
Fuzzy's A.E.	297-0828	3	24	Commodore Interests	C-64
Galafrea	987-0161	3/12	24	C-64 Downloads/Messages	C-64
Gay Community Fido 104/19	795-1215	3/12	24	Messages/Downloads for Gays	IBM
Genesis	423-8203	3/12	24	Commodore	C-64
Genesis Project	287-8267	3/12	24	Apple II General	Apple

DENVER PC BOARDWATCH
LOCAL BBS LIST — CONFIRMED UP

BOARD	TELEPHONE	BAUD	HRS	DESCRIPTION	SYSTEM
GLOBAL Information	286-7914	3/12	24	Fee Subscription/Software Database	??
Greeley-Com-Net	1-351-8861	3/12/24	24	Micro Store Support Board	Apple
Greenline	469-2053	3/12	24	Amiga	Amiga
Greeter Hub	1-473-3837	3/12	24	Discussions	IBM
Grizzly King	666-8824	3/12	24	Freeware/Colorado Outdoors/Programmers	IBM
Grotto, The	694-9858	3/12/24	24	Amiga, Pascal	IBM
Hard Rock Cafe Fido 104/25	287-1508	3/12	3P-2A	RBBS Information	IBM
HIP Shack	1-593-8766	3/12	24	Southern CO Fido 128/19 HAM/SWL	IBM
HP-BBS Fido 104/34	1-229-9719	3/12	24	Jokes, Amazing but True stories,	HP-Vectra
In To The Night Fido 104/31	659-1897	3/12	9P-3A	General Fido Messages/IBM Game Files	IBM
Insight	573-2871	3/12	5P-7A	Downloads, On-line Games	??
Investors BBS Service	1-481-4525	3/12	24	Stocks and Investments	IBM
King's Market Bookshop	665-6891	3/12	24	Books, Writers, Timex SIG, Zork	TRS
Kings Bench Fido 104/615	377-6725	3/12/24	24	Tandy 1000 ONLY/$2 Registration/Messages	TANDY1000
L&L Support	420-3568	3/12/24	24	Primary GBBS Pro Software Support BBS	Apple
Lakewood Department of Safety	987-7388	3/12	24	Police Sponsored - Law Enforcement Msgs	IBM
Lakewood RCPM/RBBS	985-1188	3/12	24	CP/M MS DOS Downloads	CP/M
Land of Lindon	987-2894	3/12	24	Fantasy Runequest Games	Apple
LES-COM-NET	233-5824	3/12	24	Lesley College Communications Network	Apple
Libyan Embassy	688-1127	3/12	24	Atari Games	Atari
Loading Zone, The	421-3830	3	24	Latest Mods - Subboards - Games	C-64
Magical Palace	457-4279	3/12	24	Apple Downloads	Apple
Manville Information Services	978-3946	3/12	24	Business Software/Macintosh	IBM
mbkSYS! Fido 104/22	443-9155	3/12	24	Writers Tools/Science Fiction	IBM
MED - Link Fido 104/444	443-4353	3/12	24	Medical Info / TI 99/4A / MS-DOS	IBM
Metro Computer Exchange	753-6677	3/12	24	IBM - C64 Messages and Downloads	IBM
Metro Data Exchange	838-2445	3	24	Commodore 64 - Grateful Dead Schedule	C-64
Micro-1040	289-2861	3	24	Private BBS for Software Support	TRS
Microlink B Fido 104/108	972-4181	3/12/24	24	Fido Board - Good Downloads	IBM
Mile Hi Forem	431-1484	3/12	24	Atari Support	Atari
Mile Hi Tech Fidonet 104/56	973-9338	3/12/24	24	Fido Area Coordinator - Fido News/List	IBM
Mile High CUSSNet Fido 104/614	698-9924	3/12	24	CUSS Computer Use in Social Services	IBM
Mile High Epson User Group BBS	752-2943	3/12/24	24	MHEUG Club Board	EPSON
Mile High Net	671-7388	3/12/24	24	Fido Board	IBM
Mile High Software Exchange	738-2258	3/12/24	24	Amiga/Apple Downloads - Messages	Apple
Mile High Turbo Fido 104/24	423-3114	3/12	24	Turbo Pascal/Denver PC Boardwatch	IBM
Minds of Mines (MOM) BBS	273-3989	3/12/24	24	CSM Artificial Intelligence/Geotechnical	TI
Mountain Amiga Enthusiasts	1-564-8618	3/12	24	Pueblo Amiga Computer BBS	Amiga
Musician's Den Fido 104/17	321-6857	3/12	7P-9A	Music interests -24 hours on Sunday	IBM
Mycroft	777-8898	3/12	??	INFO NEEDED	??
National Park Svc Fido 104/608	236-9860	3/12	24	Operations Engineering WASO 610	IBM
Networks Unlimited	296-3210	3/12/24	24	Messages/Downloads/Polls	IBM
Night Shift, The	322-1544	3/12	24	Casino, Football	Apple
Odyssey III	691-8169	3/12	5P-8A	Adult(18) / Sex Oriented - Members Only	Apple
Old West	393-7519	3/12	24	BBS List, RP Games, High Score List, Msg	C-128
Optotech Inc	1-578-7973	12	24	400 Meg Optical Disk Drive	IBM
PACE	428-3696	3/12	24	Practical Apologetics/Christian Evangel.	??
Paradise Inn	421-1967	3	5A-9P	Commodore 64 Program Files (2.6 MBytes)	C-64
PC Computer Brokers	452-9567	3/12	24	IBM,Epson Equity,TRS-80 Club Msgs	IBM
PCjr Net Fido 104/904	789-4618	3/12/24	24	IBM PC Jr./ Space Exploration	IBM
PCR HUB	1-635-8888	3/12	24	Online Novel - Not Bad!	IBM
Phone Connection	426-7969	3/12	nights	Commodore	C-64
Photo Tech BBS	781-1879	3/12	24	TRS 80/ HAM/Video/Camera	TRS
Pinecliffe Fido 104/28	444-7873	3/12/24	24	125 Meg - Online Order for CDB Systems	IBM
Pirates Cove	798-1287	3/12	24	Apple BBS with Pirate Theme	Apple

DENVER PC BOARDWATCH
LOCAL BBS LIST — CONFIRMED UP

BOARD	TELEPHONE	BAUD	HRS	DESCRIPTION	SYSTEM
Playhouse	286-7399	3/12	24	Adult BBS/Jokes	Apple
PPCompas	1-591-1453	3/12	24	INFO NEEDED	??
Prom Blaster	422-3759	3/12	24	Apple IIc	Apple
PSINet	985-2634	3	24	Parapsychology/Near Death Exper./Bibliog	TRS
RAM Board, The	449-8421	3/12/24	24	Chess/Tradwars Games. 50+Mbytes Dnlds.	IBM
Ramnet	1-598-7667	3	??	Rampart High School	??
Reggae Land	698-8144	3	10P-6A	Commodore	C-64
Regimental Headquarters	375-9556	3/12	24	Commodore - Military Theme	C-128
Retreat, The	369-7052	3/12	24	Christian Gospel/Prayer	Apple
Revelstone	722-5806	3/12	5P-2A	INFO NEEDED	??
Roc Haven	789-3230	3/12	10P-6A	Atari/Commodore	Atari
Rocky Mountain 99ers	288-3692	3/12	??	RM99ers Club Board Texas Instruments 99	??
Rocky Mountain RBBS	750-2107	3/12	??	INFO NEEDED	??
Ron and Shannons AMIS	978-0298	3/12	24	Atari Support 5.4 Megs	Atari
Sanitarium	750-0563	3/12	??	Commodore	??
Sensoria II	762-0669	3	24	Apple II RP Games	Apple
Shaman Exchange	969-0585	3/12	??	Multiline System	Apple
Shamus ST	1-591-0673	3/12	24	INFO NEEDED	??
Sheridan & Associates	935-1489	3/12	24	Buy/Sell/Trade - Chess History	Apple
Skyline Computers	457-0320	3/12	24	Atari Messages	Atari
Smart-Net	1-578-9486	3/12	24	Dungeons/Dragons Games	??
SMMUG	1-598-0111	3/12	24	Macintosh	??
Softronics	1-593-9530	3	24	Private Software Support	??
Solid Software Fido 128/15	1-591-4273	3/12/24	24	Zenith 50 Meg	IBM
Sort Support	699-0222	3/12	??	INFO NEEDED	??
Space Network	494-0446	3/12/24	24	Space Exploration Information	IBM
Span Mania	423-0348	3/12	??	INFO NEEDED	??
Springs Net	1-634-6077	3/12	7P-11P	INFO NEEDED	??
Stampede	799-9733	3/12/24	6P-10A	Atari/Amiga Messages/Downloads	Atari
Superguild 64	1-473-5739	3/12	24	Commodore	C-64
TAC Headquarters	322-0337	3/12	24	Commodore	C-64
Taj Mahal	451-7222	3/12/24	24	20 Mbytes Apple	Apple
TBBS#1 of Denver	792-2032	3/12	24	Apparat Computer BBS	??
Telenet	337-6000	3/12	??	INFO NEEDED	??
Temple of Doom	771-9523	3/12	??	IFO NEEDED	??
The 8th Sea Fido 104/610	252-9235	3/12/24	24	Scuba and Rescue Messages	IBM
The Vine	1-596-1216	3/12	24	Religious	??
This End Up Fido 104/30	430-1585	3/12	10P-10A	New Board - dBase - Utils	IBM
Toadscape, The	741-5863	12	24	Atari ST Messages/Downloads	Atari
Top O' the Rockies BBS	1-963-3688	3/12/24	24	Ski Info / Solar / Music Tapes / CDs	TI
Trekker World	745-9530	3	7A-10P	Apple Games/Messages	Apple
Unknown TBBS	988-0155	3/12	24	BBS Lists, Jokes, Amigas	CP/M
UPAS	665-0506	3/12	24	Unix Public Access System	??
UPAS	665-0505	12	24	Unix Public Access System	??
Vern's Terminal Exchange	433-1150	3/12	24	Commodore Messages/Downloads/Ads	C-64
Villa TI	1-574-2567	3/12	24	Front Range 99er Computer Club	TI
Vipertron/ PCP BBS	722-2633	3/12	24	Atari Messages, Surveys	Atari
Waterton Computer Club	977-7995	3/12/24	5P-7A	Martin Marietta Employees - 30M Dnlds	IBM
Werdna's Lair II	331-9276	3/12	24	Games	Apple
White Runes of Tinuviel	972-0566	3/12	24	Tolkien Subjects/Dungeons and Dragons	Atari
World Peace	320-4822	3/12/24	24	Current Events, Politics	Heath
ZAP!	367-4103	3/12	??	Atari/ST/8 Bit	Atari

Denver PC Boardwatch
5970 South Vivian Street
Littleton, CO 80127

TO: [redacted]

DENVER PC BOARDWATCH
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SYSOP QUESTIONAIRE

BBS TITLE:_____

PURPOSE/DESCRIPTION:_____

HOURS:_____ BAUD: _____ TEL:_____

HARDWARE:_____SOFTWARE:_____